Space Weather Forecast

Issued on Monday, 26 June 2023 at 13:08 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Isolated R1/R2 Radio Blackouts likely throughout. Slight chance of Minor Geomagnetic Storm day 2 (27 Jun).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with several Common-class flares. There are currently ten sunspot regions on the visible disc, with two unnumbered. Most remain small and magnetically simple. The largest and most complex group is in the northwest. No notable Earth-directed Coronal Mass Ejections (CMEs) appear to have occurred in the period.

Solar Wind / Geomagnetic Activity: Solar winds started at elevated levels around 550km/s and have now declined to 490 km/s. Total magnetic field strength started at Moderate levels and is now Weak. The all-important north-south component remained at mostly Weak levels. Geomagnetic activity was at Quiet to Unsettled levels (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) has been at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Moderate, with isolated Moderate-class flares likely and a slight chance of activity reaching Strong levels.

Solar Wind / Geomagnetic Activity: A CME may glance Earth late on day 1 (26 Jun) or more likely during day 2 (27 Jun), from the Moderate flare that occurred on 22 Jun. Further Slightly elevated solar winds will probably decline to around 400 km/s in the next 24 hours. Further coronal hole sourced enhancements are then possible from day 2 (27 Jun) onward however these are low confidence. Geomagnetic activity is expected to be Quiet to Unsettled before activity potentially becomes Unsettled to Active, with a slight chance of G1 Minor Storms. This is most likely on day 2 (27 Jun) with any slight coronal hole enhancement between days 2 to 4 (27-29 Jun) or potential CME arrivals between days 1 and 4 (26-29 Jun).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring. There is a very slight chance of count rates increasing however, if any notable flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	40	40
Very Active	R3 to R5 X	No	10	10	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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